Level: PhD

Course title: Advanced Analytical Chemistry (DSH-606)

Status: Elective

ECTS: 15

Requirements: None

Learning objectives

- Expanding the previously acquired knowledge on acid-base aquilibria in aqueous and nonaqueous systems.
- Introducing students to interactions in multicomponent homogenous systems.
- Enabling students to apply their knowledge in analytical and separation procedures.
- Enabling students for independent solving of complex analytical problems related analysis of unknown sample.
- Enabling students to apply mathematical and data processing methods in analytical chemistry.

Learning outcomes

After successful completion of the course, a student is able to:

- list and explain interactions in multicomponent homogenous equilibria;
- solve analytical problems related to different homogeneous equilibria processes in solutions;
- apply mathematical equations and computer statistical programs in expression of analytical results;
- adequately operate instruments in analysis of an unknown sample.

Syllabus

Theoretical instructions

Ionic equilibria in solutions. Acid-base equilibrium. Acid-base equilibrium constant determination. Redox processes. Redox titrations. Complex formations. Complex formation function. Concentration distribution. Heterogeneous equilibria. Chromatography. Extraction. Ion-exchange processes. Nonaqueous solutions. Separation methods in analytical chemistry. Analytical methods. Statistical data evaluation in analytical chemistry.

Other forms of teaching

Review of the literature. Project preparation.

Weekly teaching load				Other:
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 5	